

Afghan Lapis is mostly diopside, and Chilean lapis is mostly hauyne,

Donald Kasper 7-17-2017

The Mindat web site describes lapis as:

“Lazurite is the blue component of the 'gemstone' (or, more usually, decorative rock) Lapis Lazuli, which is a lazurite–calcite–pyrite rock that has been mined as a gem material for some 9,000 years. Dana (System of Mineralogy, 1868) actually considered lapis–lazuli to be the dark blue crystals in this rock, but these were renamed lazurite in 1891.

However, all lazurites analysed to date represent only sulfide–rich varieties of [Hauyne](#) and not a separate species. It probably needs redefining via the IMA; until then it formally remains as a hypothetical sulphide rich endmember of a series with hauyne, and all existing specimens labelled as sulphide–rich hauyne.“

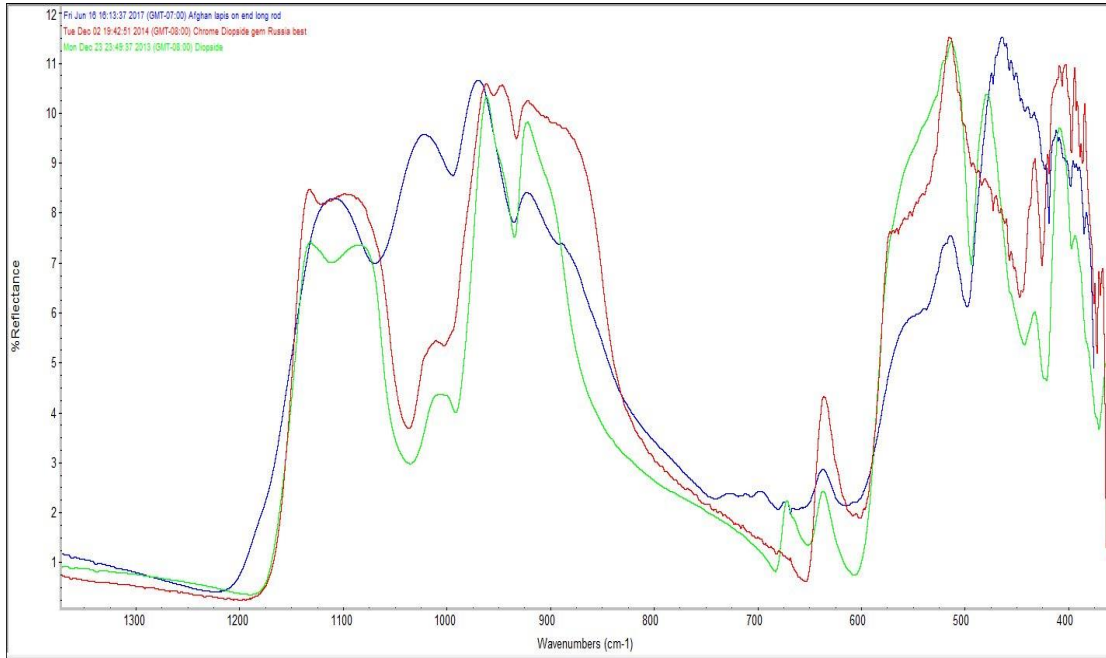
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Infrared spectroscopy shows that Afghan lapis consists of mainly diopside, dolomite, and pyrite. The Chile lapis is a true lapis with mainly hauyne, some diopside and pyrite. Graphs of each are shown below. The Mindat statement that lapis is dominated by lazurite or hauyne is false, as the Chilean source is depleted, and dominant lapis mining is coming out of Afghanistan. The carbonate is dolomite, not calcite.

I do not have a reference of hauyne, but I do have a comparison to sodalite, which is in the same hauyne feldspathoid group.

Lastly, lapis is not a decorative rock, it is a semi–precious gemstone.

Afghan lapis (blue), two reference diopsides (red and green).
Afghan lapis is mostly diopside, with dolomite and pyrite.



Chile lapis (red and green), reference sodalite (in the haüyne group) (blue graph).
Notice the 700-600 cm-1 triplet in this material missing in the Afghan material which is broadly called haüyne although the central peak also matches diopside.

